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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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AKERMAN SENTERFITT P.O. BOX 3188 WEST PALM BEACH, FL 33402-3188				
EXAMINER				
MCDONALD, RODNEY GLENN				
ART UNIT		PAPER NUMBER		
1795				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/517,868

Applicant(s)

DECROUPET ET AL.

Examiner

Rodney G. McDonald

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2009.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1.4.5.12.19-22.24-29.33.35-40 and 49-63 is/are pending in the application.
- 4a) Of the above claim(s) 22.24-29.33 and 35-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1.4.5.12.19-21 and 49-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 6, 2006 has been entered.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, 5, 12, 19, 21 and 49-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stachowiak (US PG PUB 2003/0170466 A1) in view of Lingle (U.S. Pat. 6,445,503).

Regarding claim 1, Stachowiak teaches a method for the production of a glazing provided with a multilayer coating, the multilayer coating being deposited on a glass substrate by sputtering. (See Fig. 2; Paragraph 0026-0043, 0045, 0046) A first transparent dielectric layer is deposited on the substrate followed by the deposit of a functional layer of a Ag-based infrared reflective material. (Paragraph 0026-0043) Deposited on the Ag based functional layer is a first protective layer with a geometric thickness of 3 nm at maximum and composed of a material, of which the electronegativity different from oxygen is less than 1.9 and of which the electronegativity value is less than that of the infrared reflective material. (Paragraph 0031, 0036, First Table - 16 Angstroms (i.e. 1.6 nm)) A second protective layer adjoining the first protective layer with a geometric thickness of 7 nm at a maximum and composed of a material of which the electronegativity different from oxygen is greater than 1.4, and that at least a second transparent dielectric layer is then deposited. (Paragraph 0032, 0033, 0037, 0038, 0045)

Regarding claim 4, Stachowiak teaches the first protective layer can be NiCrOx which has an electronegativity value at least 0.05 less than that of the infrared reflective material. (Paragraph 0031, 0036, 0041)

Regarding claim 5, Stachowiak teaches that the material of the second protective layer (i.e. TiOx) has a lower electronegativity value than the electronegativity value of

the material of the first protective layer (i.e. NiCrOx). (Paragraph 0031, 0032, 0036, 0037)

Regarding claim 12, Stachowiak teaches that the second protective layer is deposited in a thickness in the range of either 10-500 Angstroms or 10-900 Angstroms. (Paragraph 0045)

Regarding claim 19, Stachowiak teaches that at least two functional layers based on an infrared reflective material are deposited, each followed by the deposit of first and second protective layers, and in that at least one intermediate dielectric layer is deposited between the functional layers. (Paragraphs 0027-0040)

Regarding claim 21, Stachowiak teaches toughening through heat treatment. (Paragraph 0042)

Regarding claim 49, Stachowiak teaches the first protective layer can be NiCrOx which has an electronegativity difference from oxygen is less than 1.8. (Paragraph 0031, 0036, 0041)

Regarding claim 50, Stachowiak teaches the first protective layer can be NiCrOx which has an electronegativity difference from oxygen is less than 1.7. (Paragraph 0031, 0036, 0041)

Regarding claim 51, Stachowiak teaches the second protective layer (i.e. TiOx) can be composed of a material of which the electronegativity difference from oxygen is greater than 1.6. (Paragraph 0032, 0037)

Regarding claim 52, Stachowiak teaches the second protective layer (i.e. TiOx) can be composed of a material of which the electronegativity difference from oxygen is greater than 1.8. (Paragraph 0032, 0037)

Regarding claim 53, Stachowiak teaches that the material of the second protective layer (i.e. TiOx) has an electronegativity value at least 0.1 less than the electronegativity value of the material of the first protective layer (i.e. NiCrOx). (Paragraph 0031, 0032, 0036, 0037)

Regarding claim 54, Stachowiak teaches that the material of the second protective layer (i.e. TiOx) has an electronegativity value at least 0.2, less than the electronegativity value of the material of the first protective layer (i.e. NiCrOx). (Paragraph 0031, 0032, 0036, 0037)

Regarding claim 55, Stachowiak teaches that the first protective layer is NiCr-based. (Paragraph 0041)

Regarding claims 59, 60, 61, Stachowiak teaches that the first protective layer can be deposited at 1.6 nm. (See First Table)

The difference between Stachowiak and the present claims is that depositing the first protective layer in an atmosphere containing 20% oxygen at a maximum is not discussed (Claim 1), depositing the second protective layer in an atmosphere containing 50% oxygen at a maximum is not discussed (Claim 1), utilizing an 80/20 alloy is not discussed (Claim 56), the material of the second protective layer being selected from titanium, aluminum or tantalum is not discussed (Claim 57), the material of the second protective layer being titanium is not discussed (Claim 58), and depositing the second

protective layer in an atmosphere containing 20% oxygen at a maximum is not discussed (Claim 62).

Regarding depositing the first protective layer in an atmosphere containing 20% oxygen (Claim 1), Lingle suggest depositing NiCrO in an atmosphere containing 20% oxygen at a maximum. (See Table III)

Regarding depositing the second protective layer in an atmosphere containing 50% oxygen at a maximum (Claim 1), Lingle teaches depositing TiOx in an atmosphere containing 50% oxygen at a maximum. (See Table III)

Regarding claim 56, Lingle teaches utilizing an 80/20 alloy of NiCr. (Column 10 lines 9-14)

Regarding claim 57, Lingle teaches utilizing TiOx where  $x < 2.0$ . Here the examiner interprets less than 2.0 to include 0. (See Table II)

Regarding claim 58, Lingle teaches utilizing TiOx where  $x < 2.0$ . Here the examiner interprets less than 2.0 to include 0. (See Table III)

Regarding depositing the second protective layer in an atmosphere containing 20% oxygen at a maximum (Claim 62), Lingle teaches depositing TiOx in an atmosphere containing 20% oxygen at a maximum. (See Table III)

The motivation for utilizing the features of Lingle is that it allows for depositing durable heat treatable layers. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Stachowiak by utilizing the features of Lingle is that it allows for depositing heat treatable layers.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stachowiak in view of Lingle as applied to claims 1, 4, 5, 12, 19, 21 and 49-62 above, and further in view of Szczyrkowski et al. (U.S. Pat. 5,279,722).

The differences between Lingle and the present claims is that a titanium based protective layer deposited to terminate the multilayer coating is not discussed (claim 20).

Regarding claim 20, Szczyrkowski et al. suggest terminating a coating stack with a titanium based protective layer. (See Abstract)

The motivation for utilizing the features of Szczyrkowski et al. because it allows for producing panes with high reflectivity. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Szczyrkowski et al. because it allows for producing panes with high reflectivity.

Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stachowiak in view of Lingle as applied to claims 1, 4, 5, 12, 19, 21 and 49-62 above, and further in view of Farmer et al. (U.S. Pat. 4,973,511).

The difference not yet discussed is the second protective layer being deposited in an atmosphere containing a maximum of 10% oxygen (Claim 63).

Regarding claim 63, Farmer et al. teach depositing a first protective layer in an atmosphere containing a maximum of 10% oxygen. (i.e. 1 sccm for 31 total sccm of gas) (Column 13 lines 21-30)



The motivation for utilizing a low amount of oxygen during reactive sputtering is that it prevents damaging the silver layer by oxidation. (Column 13 lines 25-26)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Farmer et al. because it allows for preventing damaging of the silver layer by oxidation.

### *Response to Arguments*

Applicant's arguments filed February 6, 2008 have been fully considered but they are not persuasive.

In response to the argument that Stachowiak  $\text{TiO}_x$  layer is not a protective layer, it is argued that in Stachowiak suggest at paragraph 0044 that stoichiometric  $\text{TiO}_2$  or alternatively non-stoichiometric  $\text{TiO}_x$  can be used as the second protective layer. The layer is identical to applicant's disclosed layer and therefore would serve the same function. (See Stachowiak discussed above)

In response to the argument that Stachowiak is silent about the atmosphere during the deposition of the  $\text{TiO}_x$  layer and that the  $\text{TiO}_x$  layer is a  $\text{TiO}_2$  layer, it is argued that while Stachowiak is silent on the atmosphere for sputtering Lingle provide conditions for sputtering the alternative non-stoichiometric  $\text{TiO}_x$  layer. (See Stachowiak and Lingle et al. discussed above)

In response to the argument that Applicant's claimed invention has an unexpected advantage by depositing the protective layers in the claimed oxygen atmosphere, it is argued that since Stachowiak teach depositing the same layers as Applicant and that Lingle teach the conditions needed to achieve deposition of those layers the same result will be achieved. (See Stachowiak and Lingle discussed above)

In response to the argument that one would not look to Lingle et al. because Lingle et al. does not teach depositing a second protective layer above the Ag layer, it is argued that the in Lingle there is a TiOx layer deposited above the Ag layer. However Lingle was relied upon to teach conditions for depositing the layers. (See Lingle et al. discussed above)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M-Th with every Friday off..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rodney G. McDonald/  
Primary Examiner, Art Unit 1795

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